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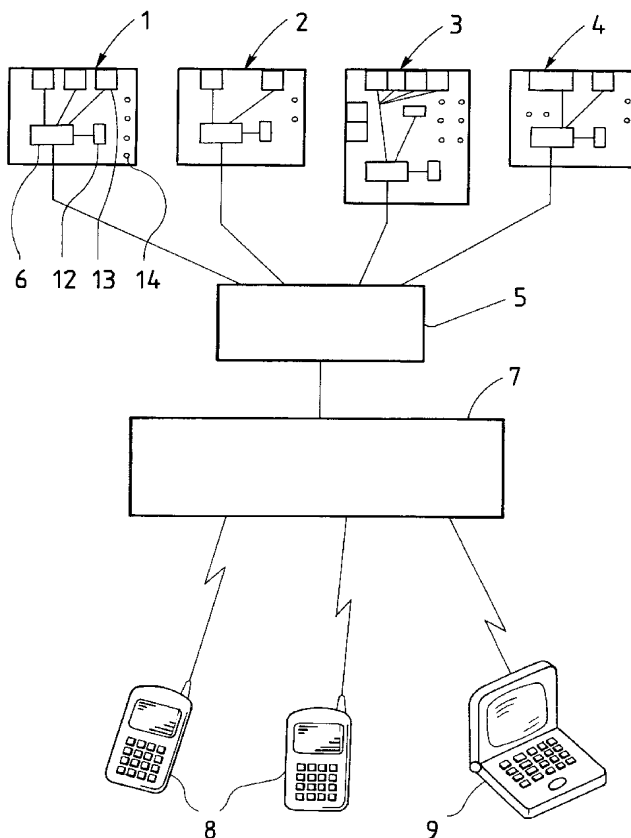
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(54) Title: METHOD AND SYSTEM FOR PROVIDING INFORMATION OF QUEUE SITUATIONS AND FOR RANGING OF QUEUING CLIENTS IN SERVICE ENTITIES



(57) Abstract: Method and system for providing information of queue situations and for ranging of queuing clients in service points (1-4) by means of electronic communication. The object of the method and the system is to rationalise the queuing with a reduction of a waiting time and of movements in search of service points. The following main opportunities will be available. Presentation of queue situations at a selected type of service point within a certain area, giving a basis for personal time planning. Opportunity to book a queue position ranged in the existing queue or booked for service at a chosen time. Possibility to activate a program for production of a time and moving schedule for visiting a number of service points of interest within a chosen area. The system is based on remote communication by means of mobile units and on computerised queue administration. Each user may have access to a mobile communication unit such as a mobile telephone. The user's mobile units are connected to a server (5) being the main part of the system, and queue organisation equipment at the service points (1-4) are also connected to the server. The server is provided to check the queue situation at the connected service entities (1-4) and to produce an overview of the situation which on demand can be presented to the system users by means of their mobile units. The server is further provided to receive instructions from the users to book a queue position.



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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

TITLE:

Method and system for providing information of queue situations and for ranging of queuing clients in service entities.

5 TECHNICAL FIELD:

The invention relates to a method and system for providing information of queue situations and for ranging of queuing clients in service entities provided to supply service to clients visiting the respective entity which is
10 equipped to register the arriving clients demanding service, and to the successive effecting of service in situations when queues are formed because the demand for service temporarily is greater than the service executing capacity.

15 BACKGROUND TO THE INVENTION:

In modern life queue situation frequently occur. A kind of queue can be called spontaneous queues, they will be formed at service entities when the demand for service is greater than the service executing capacity. Typical
20 service entities where such spontaneous queues will occur are bank- and post offices, shops and box offices. Persons demanding service is in the present content are generally named as clients.

Other service entities where spontaneous queues frequently are formed is in
25 establishments such as pleasure parks, adventure grounds and buildings and also in town centres. At such places there will be a number of attractions, restaurants and other places of interest to visit which are gathered in a limited area. By visiting such an establishment or centre, the visitor, the client, has a number of places of interest to consider and which
30 area the visitor's disposition to choose between. Sometimes the visitor wants to, in a period of time, visit several places such as attractions in a pleasure

park. Thereby substantial queues can be formed at some places, while at other places no or short queues are formed.

In town centres the visitor can be depending on communication conditions,
5 as time tables and lines of a public transport system or parking possibilities and ways to drive in order to avoid traffic congestion.

The forming of spontaneous queues means an unwanted consuming of time for the person who demands service. Most service entities, such as offices of
10 different kinds, are equipped with a queuing system including an apparatus for delivery of queue tickets indicating a queue position. That means that the person who demands service first has to visit service entities in order to receive a queue ticket and thereafter has to wait until the moment he served has come. Thereby a considerable period of time can be spoilt on waiting.

15 In the other mentioned example of places where spontaneous queues can be formed, consequently at establishments or centres where a number of places of interest to visit are available, the time consumption can be still more troublesome. It can be necessary for the visitor to move between a
20 number of attractions in order to investigate the queue situations and thereafter try to decide which attraction or attractions that shall be visited. Besides the time consumption for queuing and investigating of the queue situations, there will be a lot of moving between the attractions in order to satisfy both the desire to visit some attractions and the desire to minimize
25 the queuing.

The patent document GB-A-2307324 (Leonard Sim) discloses a system for arranging queues. Here, a number of mobile user terminals are used, which are arranged for wireless communication with a communication centre. It is
30 arranged to connect information concerning the queue situation at different service entities and to provide persons that handles respective user terminal

with the possibility to book queue positions, thus using wireless communication. It is presumed that the system is arranged for establishments with a number of adjacent service entities, such as hypermarkets and pleasure parks and other attraction establishments.

- 5 Beyond the wireless communication, communication between the central establishment and the user terminals via docking stations is also disclosed, in which docking stations information may be exchanged with the user terminals.
- 10 The patent document SE-B-9904697-1 (Dick Holmén) discloses a system, device, computer software product and method for assigning service resources to users for service at a service entity. In particular, the maintaining of a queue and information concerning this is concerned. A device belonging to the system is thus arranged to maintain queues and
- 15 information concerning these for wireless transmission to user terminals which, except being arranged for reception and presentation of the information also are arranged for communicating demands for information and for allocation of service resources, in other words booking of queue positions. The device and the user terminal are connectable to one or more
- 20 communication networks, e.g. one or more data/telephony networks, such as the Internet and one or more mobile telephone networks.

SUMMARY OF THE INVENTION:

- 25 The object of the system is to rationalize the queuing with reduction of waiting time consumption and for movement when searching for service entities. The system is based on remote communication, preferably by means of mobile units, and on computer based queue administration. Each user shall have access to a communication unit that preferably is mobile. In
- 30 most cases, the mobile unit may be a mobile telephone connected to an existing network. In certain cases, by way of example in connection with

visits at establishments such as amusement parks, special mobile units may be provided. Thereby the following main functions will be available:

- 5 - Presentation of the queue situations at a selected kind of service entities within a certain area, giving a base for personal time planning.
- 10 - Opportunity to book a queue position ranged in the existing queue or booked for service at the a chosen time after the last position in the existing queue, giving the possibility to utilize the queuing time for other purposes.
- 15 - Opportunity to activate a program for production of a time schedule for visiting a number of service entities of interest within a chosen area providing an optimal time exploitation and a rational traffic planning.
- 20 - Opportunity to activate a program for movement between different adjacent service entities in a rational manner with the best possible usage of time based on queue time data for the service entities that shall be visited and times for movements between them and also with an advantageous logistics for mapping the movement paths. It is thus presumed that the communication units are mobile and that the temporary position for the units may be registered and used as a base for said movement program.

25

These functions are especially advantageous to use at establishments with several service entities as, for example, amusement parks and other attraction establishments and also hypermarkets and shopping malls with several separate service entities. The service functions may also
30 advantageously be used in certain city centres and thus information may also be added to the program for the movement concerning a suitable use f

public communications such as buses and underground or, alternatively, movement by car with respect to driving paths, traffic regulations and parking opportunities.

- 5 A service entity such as an office subjected to the forming of spontaneous queues and which is connected to the system has to be equipped with a machine issuing queue tickets to persons visiting the entity. Further, each service desk of the entity shall be equipped with means for indicating the executing service relating to the queue.

10

- The user's mobile units are via an existing communication net connected to a server being the main part of the system, and the equipments of the service entity are connected to the server via an existing communication net or a direct line. The server is provided to check the queue situation at the connected service entities and to produce a survey of the situation which on demand can be presented to the system users by means of their mobile units. The server is further arranged to receive instructions from the users to book a queue position ranged after the last queue position issued at the current moment, the server thereby also giving a calculated point of time when the booked service will come in turn. Alternatively, the booking can be directed to a queue position for service to be carried out at a chosen point of time after the existing queue.
- 15
- 20

- For visiting of the described types of establishments, the server is arranged to give a full presentation of the queue situation and the respective predicted queuing times. The server is further programmed to on demand produce a time schedule for visiting a chosen number of attractions or other places and also a logistic traffic planning, preferably based on registering of the temporary positions of the mobile units.
- 25

30

DESCRIPTION OF THE DRAWINGS:

The following description of preferred embodiments of the invention is illustrated in the attached drawings, in which:

5

Fig. 1 shows a schematic block diagram relating to a first embodiment of the invention.;

Fig. 2 shows a view inside a service entity relating to the first embodiment;

10 Fig. 3 shows a schematic block diagram relating to a second embodiment:

Figs.4 and 5 show a display window of a system user's mobile unit in two different conditions; relate to the second embodiment.

15 DESCRIPTION OF THE PREFERRED EMBODIMENTS:

Fig. 1 relating to the first embodiment can be regarded as a schematic overview of a infrastructure including a number of services entities 1-4. The main part of the queue organizing system is a server 5. It is connected by
20 wire or wireless to local, subsidiary servers 6 at the service entities 1-4 in order to transfer information by means of electronic communication. The main server 5 is also connected to the central switchboard and transceiver 7 of a telephone system serving mobile telephone units for wireless communication. Such telephones, in the following called user's
25 communication units 8 are, shown in fig. 1. The system according to the invention is however not restricted to the utilization of mobile telephones as user's units. In fig. 1 it is indicated that the users could also use units such as personal computers, which are illustrated in fig. 1 by means of a presentation of a lap-top computer 9. Also stationary telephones can be
30 used but it is, however, presumed that the utilization of the system mainly takes place by means of the users' mobile units.

The services entities at the first embodiment can be offices such as bank and post offices, or box offices or shops or every kind of service entity offering service to people visiting the entity. Such service entities are subjected to forming of queues when the capacity of executing service temporarily is lower than the demand of service from people visiting the service entity. Such entities are generally equipped with one or more queue ticket machines, in the figure indicated with 12. Such a machine will, when activated, produce a ticket indicating a queue number. The service entities are further equipped with a number of attendance desks or counters, in fig. 1 indicated with 13. At these desks the service will be executed in order after the queue numbers. Thereby there are displays showing the current queue number together with an indication of which desk is ready for service.

In fig. 1 the service entities 1-4 are illustrated as not fully equivalent to each other. It is presupposed that the services entities 1 and 2 are offering the same kind of service, they could for example be two post offices, while the service entities 3 and 4 are of different kinds. The queuing people are indicated, with 14.

The interior of a service entity equipped as indicated at the service entity 2 in fig. 1 is illustrated in fig. 2. Thereby is shown a desk with two counters 13 numbered 1 and 2. At the desk is also said display and indicated with 16. It is showing the current queue number and current counter number. The queue ticket machine 12 is also shown. It is arranged with a key 17 for activation of production of a queue number ticket 18. In the illustration, the machine 12 is completed with a display showing the queue numbers being next in turn and the expected waiting times.

The service entities equipped as described are very common. To visit such service entity when a substantial queue is formed can be very time consuming. At first, the person demanding service has to visit the entity to

receive a queue ticket. Thereafter the person has to wait until the queue number in question will be shown. It is difficult to use the waiting time for any useful activity as it is necessary to watch the advance of the queue in order not to miss when the relevant number will be shown.

5

After instruction from a system user via the respective user's unit 8 and the mobile telephone net, the system server 5 is arranged to co-operate with the respective local servers 6 in respective service entity to register the queue situation at one or more of the service entities according to said instruction.

- 10 Such information may comprise how many queue places that are booked and the estimated time for executing the service for the current queue and also, if demanded, the location of the respective entity and also the service offered. If the user ask for service of a certain kind, which can be provided by several service entities (compare the service entities 1 and 2 in fig. 1)
- 15 said information will give the possibility for the user to choose the entity which is most suitable according to estimated time for executing the existing queue and location relative to the spot from which the user is calling.

- A certain function, which can be provided by means of the system, is an
- 20 automatic registration of the location of the user's mobile units, a service which may be offered by the mobile telephone net provider. If this service is provided, the information sent via the net to the user's unit can include an identification of the distance between the user's unit and the service entity in question, which also can be combined with a description of the route to walk
- 25 or drive respectively.

- Based on the information received, the user can book a queue place at a chosen service entity without visiting the entity. Thereby two alternative can be offered: booking of the first available place, consequently the first place
- 30 after the end of the existing queue, or a place available at an indicated point of time after the calculated time for executing the existing queue. As in most

kind of services it is not possible to give an exact time for the showing of the booked number, the user must be present at the service entity a certain period before the calculated point of time appears, resulting in a certain waiting time. It can thus be supposed that by the alternative, to choose a
5 certain point of time at a period after the estimated time for executing the existing queue, the waiting period may be minimized.

As evident from the foregoing it is presupposed that both persons visiting the service entity for receiving a queue ticket and staying in the place waiting for
10 their turn, and people who have booked a queue place via distant electronic communication shall be handled in the system. Thereby the system is arranged to control the queue ticket machine so that the series of queue numbers of the tickets produced will include gaps representing the queue places reserved by means of the electronic communication. In order to
15 inform the persons who are present at the service entity of the entire queue situation, a display (compare 19 in fig. 2) is arranged to show at least the queue numbers which are nearest to be executed, thereby both the numbers which are reserved by means of the queue tickets and by means of communication from the user's units are shown.

20 At the counters 13, where the service is handled, manoeuvring organs are provided to make it possible for the attendants to change the number of the display 16, showing the next number to be executed. By continuous registration of the period of time between such changing of the queue
25 numbers on the display, it is possible to equip the system for calculation of the time necessary for executing the existing queue.

All data produced at the service entity and related to the handling of the queues have to be transmitted to the system server via the local service
30 entity servers 6 together with certain data such as locality and nearest

infrastructure positions for parking places, lines of local transport service and availability for disabled persons, for example.

By storing such data, both temporary and more permanent, the server can
5 produce on demand from the respective user's units, information of the current queue situation and other data of interest for the user and can also effect queue position reservations.

By the executing of the service in the service entity, the person in turn to be
10 served has to show the queue ticket received. If, however, the person has reserved the queue place by electronic communication, the users mobile unit can be arranged to show the queue number reserved to the attendant by means of the display on the mobile unit. If reservation is made via electronic communication, but not by means of a mobile unit, confirmation of the queue
15 number can be made by means of a temporary code transmitted to the user and to the server of the service entity, so that the queue number can be confirmed by giving the attendant the relevant code.

In order to prevent improper utilization of the system for reserving of queue
20 places, which happens when the user is not present at the time for executing the number in question, the system can be provided to debit a "fine" in such cases. For the queue service described, the system server may be provided to debit a fee.

25 The second embodiment illustrated in fig. 3 relates to establishments such as pleasure parks, adventure grounds and the like. In such places there are a number of service entities 24 of different kinds such as merry-go-rounds, roller coasters, casinos, restaurants and other attractions and places of interest for a visitor to pay visit to. Each such service entity 24 is equipped
30 with a queue passage 25 to an entrance 26 to the service entity. The passage has an entrance end equipped with a turnstile 27 provided with

- means for registering every person joining the queue. Also the entrance at the inner end of the queuing passage 25 is equipped with means 32 for registering the passage of visitors. There is also a further entrance 28 with a turnstile 29 and control means 30 for release of the turnstile 29 to let
- 5 persons pass one by one to reach the interior of the entity via the entrance 28. The service entity is also provided with an exit 31, which also can be equipped with registration means for the passage of visitors out from the service entity.
- 10 All these registration means are connected to a main server 34 of the system. The server is arranged to process and store all data communicated from the respective service entitie 24 and representing the number of queuing persons and the persons passing the entrance 28 being controlled at the turnstile 29. The number of persons within the service entity can also
- 15 be communicated to the server if the persons passing the entrances 26 and 28 and the persons passing the exit 31 are registered.
- In service entities offering a possibility to make a ride such as merry-go-rounds and roller coasters each run allows a certain number of
- 20 persons to ride and after every run the attraction is emptied. Thereby it may be sufficient for the function of the system to register the persons in the queue in the passage 25 and the persons passing the turnstile 29 to reach the entrance 28. By such circumstances it is possible to calculate how long time it will take until all persons in an existing queue have passed the
- 25 entrance 26 as it is known how long the time each will last.

In service entities of the type casinos and restaurants for example, it is not possible to know how long each person will stay. In such cases it would be of interest to count the incoming visitors and those who leave the entity. If by such registration it is established that the capacity of the entity is not made
5 full use of, there will be no queue formed in passage 25 as long as there are free places in the entity. If the capacity is fully utilized, the letting in is depending on how many persons that is leaving through the exit 31. Counting of the persons let in through the entrance 26 and passing out through the exit 31 will give information of the number of vacant places. To
10 calculate the queue time is relatively complicated. If there are places vacant, there will be no waiting presupposed that the arriving visitors do not belong to a group with a number of persons exceeding the number of vacant places. If the capacity is fully utilized, the registration of the frequency of leaving persons could give certain base for the queue time.

15

The system server 34 is connected to transceiver 35 arranged for distant communication with a number of users' mobile units. Also at this embodiment mobile telephones can be used, but it is to prefer that special mobile units are available to visitors of the establishment and certainly if the
20 establishment is equipped with an own net for mobile telephony, in the figure represented by the transceiver 35. If mobile telephones connected to an existing net are used, it is necessary that the telephone subscription is connected to a service adapted to be utilised in connection with establishments of the described kind. It can be supposed that not every
25 visitor is equipped with a mobile telephone connected to a relevant service. It is therefore to prefer that the establishment is equipped with an own network and mobile units adapted to the service needed. Such mobile units can be borrowed at the entrance of the establishment. Such special user's mobile units are indicated 37 in fig. 3. For visitors who prefer not to borrow
30 any such unit, the establishment can be equipped with stationary

Such mobile unit 37 of the special type to be utilised in an establishment of the described type is shown in figs. 4 and 5 in two different states of communication. The front side of the unit 37 is provided with a display window 45, an on-off key 46, loudspeaker 47 and a key for regulating the volume of the loud speaker. At the sides of the unit there are a number of keys 49,50 and 51 for the manoeuvring of the unit.

It may be assumed that the visitor when arriving at the establishment, wants to be informed about the different kinds of service that are offered at the establishment. Such information can be presented visually on the display 45 of the unit in the way shown in fig. 4. To the left symbols are shown for a different kind of service offered. If the space on the display is not large enough to show symbols for each service, the unit can be manoeuvred to let the list of the symbols run or being browsed through. Of course the symbols could be supplemented or replaced by text. Complementary information can also be given via the loudspeaker. It is also possible to use the back side of the unit for a list or a map giving a survey of the service possibilities. After the study of the service possibilities, the user has to choose a number being of interest to visit.

reby the next information step is shown to the right on the display including the queuing times for the chosen service entities; the upper line 54 in the respective sections. Below is indicated the estimated moving time from the position of the mobile unit, which is detected by means of the receiver 35, and to the respective entity; the filled lower line 55 in every section. The extended, not filled part 36 of the lower double line indicates the queuing time from the estimated moving time to the entity and until the visitor is in turn to be served. In the sections there are arrowheads 57 indicating the earliest point of time to be served if reservation of a queue position is effected immediately. At the top of the display over the indications 54-57 is a minute scale.

5 ter considering the queue situations and moving times, the user can now by means of the keys on the it indicate to the server a more defined decision at which entities queue reservations shall be made.

 reafter the server will by means of the data processing produce a
10 rational plan for iting the service entities indicated. Thereby will be effected the to the plan pted queue reservations. The planning is programmed to minimize the time for waiting d to produce a logistic planning of the movement between the tities chosen, aimed to minimize the total moving distance. Such ning often means a compromise
15 between minimizing of the queue times and of the ving distances, so that the periods between the moment when the queue position was booked
 nd until this position is in turn for service, can be used for the necessary movement from service entity to service entity.

20 ig. 5 is shown how such a programme planning can result in a temporary piece of information. ch information can include an indicating 65 of the current time, information 66 of the kind of entity to be visited next, an indication 67 of the effecting time of the reserved booked position, information 68 relating to the distance to move and information 69 relating to
25 the way to go and an indication of the reserved queue number and the number of persons for which the reservation is made. During the moving, further information can be given on the display or by means of the loudspeaker.

30 When the user has arrived at the service entity, the unit 37 has to be activated in the front of the control means 30 at the entrance 28 of the

respective entity. Thereby the turnstile 29 will be released for the passage of the number of persons for which the reservation is made, and at the time requested. The signal from the unit to the control means 30 in order to release the turnstile 26 can be transferred by providing the unit with an
5 IR-transmitter and the control unit with a receiver for a coded IR-signal. There are, however, other ways to transfer such an activating signal.

After that the user have been let in to the service entity, the display will change to information of the same kind indicating data for the next visit and
10 so on.

For visitors who have not borrowed any communication unit, the same processing as described can be effected by means of a stationary monitor 39. The processing will be about the same as described for the mobile units,
15 but with the difference that the established plan for visiting the chosen service entities will be printed out and can be removed and carried during the planned round.

The mobile unit can also be provided for effecting of payments. One way of
20 arrangements may be to let the visitor, when borrowing the mobile unit, load the same with a certain amount of electronic money, which can be successively consumed at the visiting of the respective service entity by means of activation from the respective control means 30. Also cost for food and drinks can be paid by means of cash machines at the respective service
25 entity. Money not consumed can then be repaid at the exit of the establishment, possibly together with a deposit for borrowing the mobile unit.

The description of the second embodiment follows a procedure resulting in a
30 plan for visiting a number of places of interest for reducing the queue waiting

times and moving distances to a minimum. This procedure can principally be described in the following way.

1. Displaying by means of a user's unit to the user the available places
5 of a kind being of interest to visit.
2. Pointing out and displaying a number of places of certain interest to
 get further information about.
3. For these places displaying the queue situation and moving distance
10 from the place where the user is situated together with the mobile
 unit.
4. Indicating the places which the user has decided to visit.
5. Producing by means of data processing a plan for visiting the places
 the user has decided to visit with minimizing of queue waiting times
15 and total moving distance and also with regard to the users own
 decided time schedule.
6. Displaying - or printing out - particulars relating to the visiting plan
 including for each visit identification of the place to visit, visiting time,
 way to walk or to drive, and if requested, information about public
 transportation service.

20

This procedure can be adapted for production of visiting plans in a lot of situations besides the described visit at an establishment such as an amusement park. Such situations can also be a visit to a town centre a busy Saturday evening in order to find theatre or cinema seats and a nice
25 restaurant. Also when visiting a department store or shopping centre could it be of value to get a view of the supply and than to have an information how to find the goods desired. Exhibitions and fairs are other places to which the procedure can be adapted for rationalization of the visit.

30 When visiting a town centre, detailed information concerning the communication conditions and topography may be very valuable, and

especially if several service entities of different kinds shall be visited. The information shall thus be adapted for the kind of transport that is chosen. When walking, such logistics that minimizes the path is important, with usage of aids such as elevators and escalators. For longer distances, it may
5 be of great interest to receive information about the usage of public transports such as buses, trams and underground, and also to receive information about the adequate time tables.

When using a car, it is often not possible to drive directly to all service
10 entities in a town centre, and one often has to park the car at a certain distance from the service entity. Information concerning parking places and their positions in relation to the service entities that shall be visited are thus important as well as how to get from the parked car to the service entity. An important part is that the information concerning parking places and the
15 information about parking fees and allowed parking times etc. is presented to the visitor. Information about where free parking places are positioned is also possible to provide if the corresponding registering at the service entity is available to transfer to the visitor. Booking of such a place is also possible to put into the system if the parking area is provided with markers for booked
20 places. Thus said function concerning debiting a fine if the place is not used within a predetermined time may be applied.

In town centres and other densely built-up areas a lot of parking places are present, which are pre-rented by a person or an institution. Many times
25 certain places are not used during certain times. Thus parking places which are rented by companies and institutions are not occupied after office hours and during the night. The company, the institution, does not generally wish to provide with such places to others during certain times, as such circumstances may arise that the place has to be used anyway.

The system according to the invention may be adapted in such a way that pre-rented parking places, that the owner surely knows are not used during a certain period of time, may be placed to the disposal of a pool for being used by visitors paying a fee. Such guest disposal of a pre-rented parking
5 place is thus limited in time, a time for which information is provided in connection with the booking. The system may be expanded to provide a signal to the user's unit when the booked time is about to expire. If, in spite of this, the vehicle has not been removed from the place within the booked period of time, a punishing fee may directly be debited the user in the way
10 previously described. It is thus possible to limit the using possibility for pre-rented places by others than the owners, to such users that have registered an account which is tied to the queue service. Withdrawals from such an account shall be made according to agreed safety routines.

CLAIMS:

1. Method for providing information of queue situations and for ranging
5 of queuing clients in service entities (1-4) arranged to supply service to
clients visiting the respective service entity, which is quipped with a device
(12,16/27,29,32) for registering data relating to clients demanding service,
and to successive effecting of service, thereby ranging the clients in a queue
in situations when queues are formed because the demand for service
10 temporarily is greater than the service executing capacity, where data
produced by said device (12,16/27, 29,32) are continuously processed to
establish the present queue situation at the respective service entity (1-4),
that said data are received by a server (5/34) having connection by means of
electronic communication with a number of communication units (8,9/37,38)
15 at disposal of presumptive clients, the server after activation from a
respective of said units communicate to the same information of the
temporary queue situation based on said data processing and that the
server on differently activation from one of said units activates said device to
reserve a queue position in the queue formed at the respective service
20 entity, said queue position being possible to confirm at the respective
service entity by means of data communicated from the server,
characterised in that the server (39) is receiving data establishing
the present queue situation at numerous service entities (24) and the
location of the same and is after activation from one of said units (37, 38)
25 communicating to the same a survey of the queue situation and location of a
number of, at said activation specified service entities and that the server on
differently activation from one of said units communicate to the unit a time
and moving schedule for visiting a number of specified service
entities, the schedule based on such data processing aiming to minimize the
30 moving distances and queue waiting times.

2. Method according to claim 1, characterised in that at least some of said communication units (8,9/37) are mobile and are communicating with the server (5/34) via a net (7/35) for mobile telephony arranged to register the location of the respective unit (8,9/37) during its
5 activation, and that data relating to this location is transferred to the server and processed together with data relating to location of those service entities (1, 4/24) to which the time and moving schedule relates, the processing performed to result in a specification of the distances between the unit in its location during activation and the location of said respective service entities
10 and being presented in the time and moving schedule.

3. Method according to anyone of claims 1 or 2, characterised by that the server (5/34) is comprising a register containing a number of accounts connected to the respective communication
15 units (8,9/37,38) and being arranged to record fees at the booking of a queue position reservation by means of activating from any of the communication units, on the corresponding account, the fee being composed of two parts: a first amount representing a fee for the data processing executed by means of the server and for the communication, and a second
20 part being a precaution amount for preventing improper utilizing of the possibility to book queue positions, thereby the server is provided to remove the second amount of the recording on the account if, by means of the server, it is recorded that the booking of the queue position is confirmed to be utilised at the respective service entity (1-4/24), while, if confirmation not
25 is made within a predetermined period of time, the second amount of the recorded fee is left to remain on the account together with the first part.

4. System for carrying out the method according to any of claims 1-3 for providing information of queue situations and for ranging of queuing clients
30 in service entities (1-4/24) which are arranged to supply service to clients visiting the respective service entity, which is equipped with a device

(12,16/27, 29, 32) for registering data relating to arrival of clients demanding service, and to successive effecting of service, thereby ranging the clients in queues situations when such are formed because the demand for service temporarily is greater than the service executing capacity, where
5 the system comprises at least one server (5/34) connected to the said device (12,16/27, 29, 32) and arranged to, based on continuous processing of data from the device, store data relating to the temporary queue situation in the respective service entities (1-4), a number of communication units (8, 9/37, 38) which on activation are arranged to establish connection with the server
10 and to, by means of manoeuvring, receive data from the server for producing a presentation in a display (45) of the communication unit showing the temporary queue situation at service entities by means of the communication unit indicated and to, by means of differently manoeuvring via the server activate said device in an indicated service entity to reserve a queue
15 position, whereby the server is arranged to confirm the same by means of a signal when visiting in the service entity, where at least some of the communication units (37) are mobile and connected to the server (34) via a network for mobile electronic communication (35),
c h a r a c t e r i s e d b y that the server (34) is arranged to,
20 by means of activation from any of the respective communications units, process data relating to the queue situation in several service entities (24) for producing data relating to a survey of the queue situation in several service entities including calculated time for effecting the service for the temporary queue, and that the communication units are arranged to present
25 in the display (45) of the unit a time schedule including the queue time at the service entities indicated from the communication unit at said activation of the server, and that the server is arranged to execute reservation of queue positions by usage of data for said schedule, at different activation.

30 5. A system according to claim 4, c h a r a c t e r i s e d b y that the network for mobile electronic communication (35) is arranged to detect the

location of the respective mobile communication unit (37) during activation of the same and to communicate such data relating to the units localisation to the server (34) and that the server is arranged to, by processing of these data and data relating to locating of the respective service entities (24),
5 produce data relating to the distance between the respective service entities and the temporary location of the communication units to be communicated to the communication unit at activation of the same, whereby the communication unit is arranged to produce a presentation in the display (45) of the same of said distance together with the presentation of the respective
10 queue situation including said time schedule.

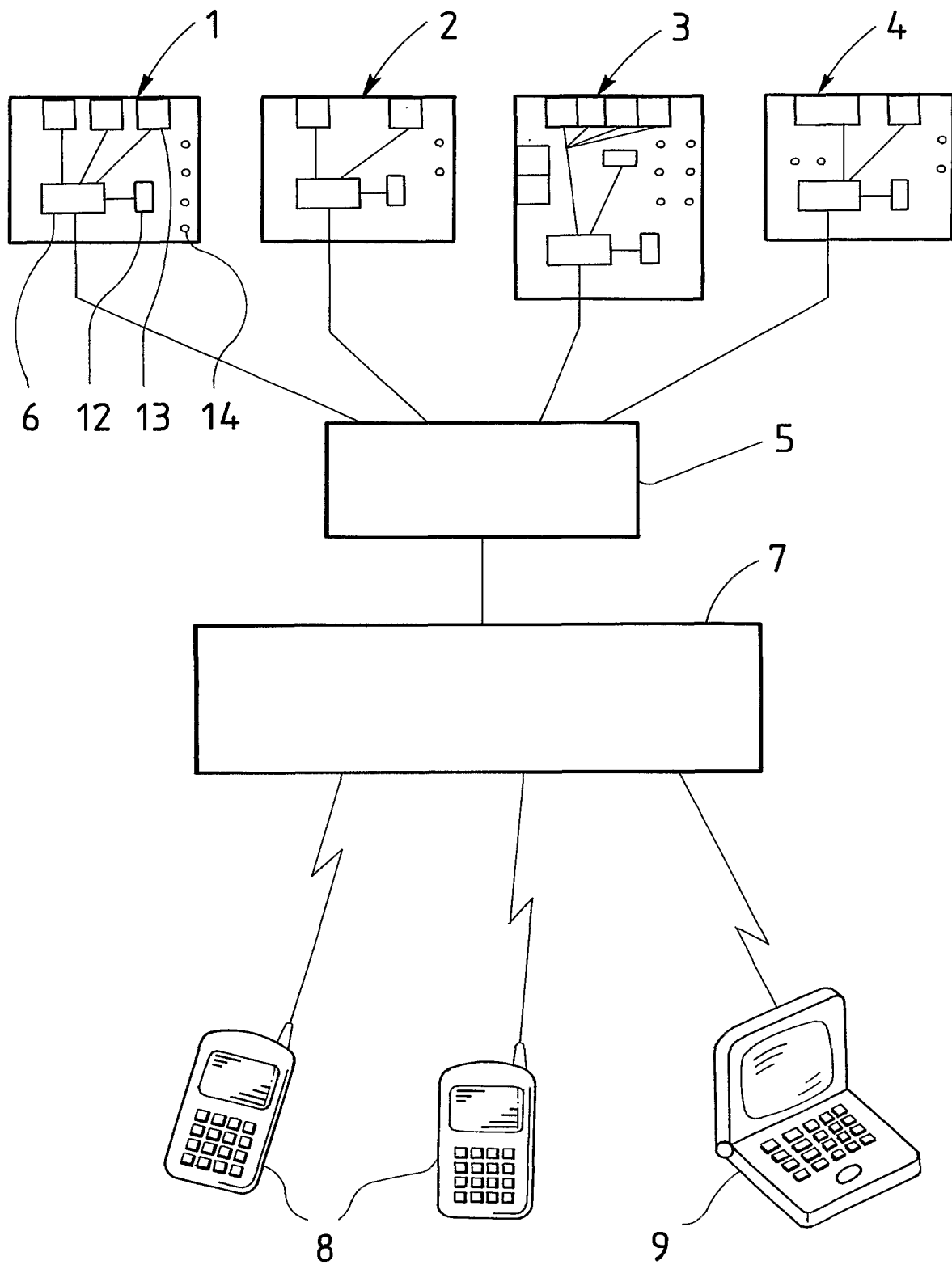
6. System according to claim 5, characterised by that the server (34) is arranged to make up said survey including calculated queue
tie at present at service entities which have been indicated by means of a
15 communication unit (37) and the distance to these service entities at the temporary location of the communication unit, and by means of data processing produce data for a time and moving schedule to be presented in the display (45) of the unit.

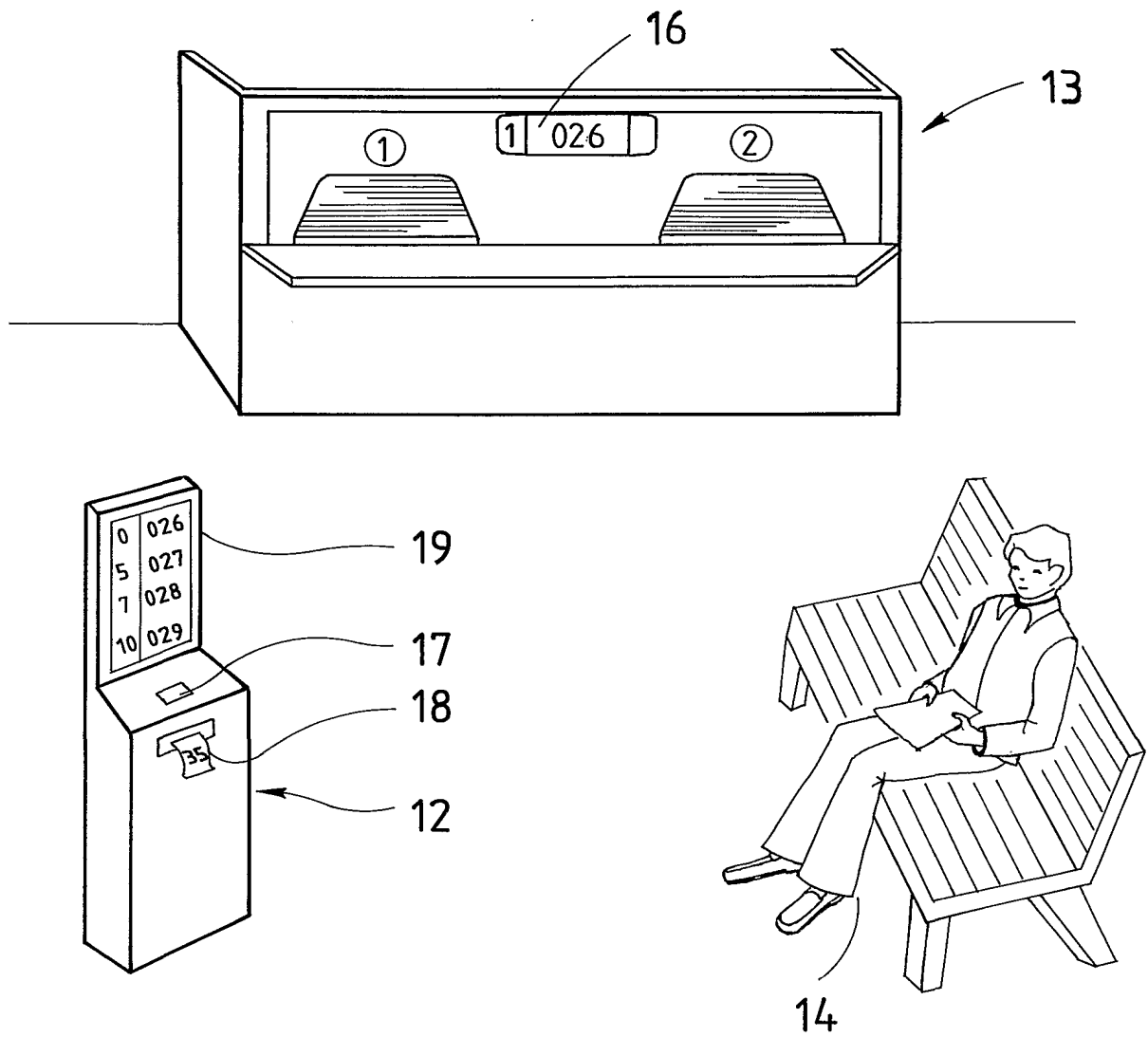
20 7. System according to claim 4, characterised by that a least some of the service entities (24), such as a registration device for arriving clients, who have not reserved a queue position in the said manner, have a passage sensor, such as a turnstile (27), and for clients who have reserved a queue position in the said manner, have a passage gate (30), which is
25 arranged for being opened for passage at said confirmation of the queue position reservation by means of signalling.

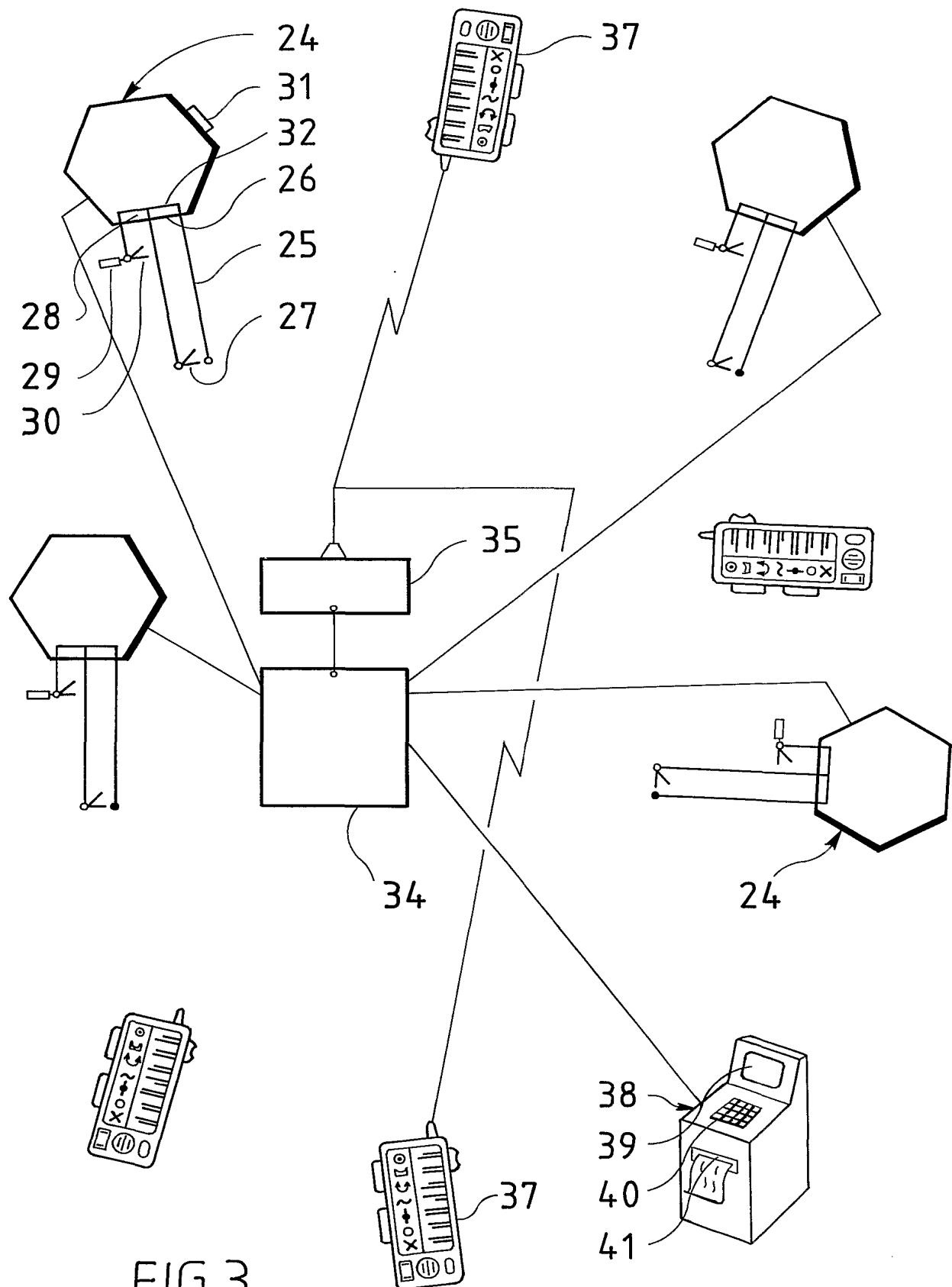
8. System according to claim 4, characterised by that the same is connected to an arrangement which is arranged to register the
30 presence and localization of temporarily unoccupied parking places for cars within a predetermined area and arranged to continuously forward

information concerning this to the server (34), which server at activation from any of the communication units (37, 38) to this communication unit forwards this information for presentation in the display (45) of the unit, and that, at relevant activation from the unit, by means of said arrangement during a
5 predetermined period of time, reserve a chosen parking place by means of communication from the unit.

9. System according to claim 8, c h a r a c t e r i s e d by that said arrangement except publicly available parking places also is connected to
10 places which are reserved for one or more possessors by means of renting or in some other way, and with the arrangement arranged to register such reserved places, which from the respective possessor have been marked out as available during a certain period of time, for executing said information message and a temporal reservation from any of the communication units
15 (37, 38) via the server (34).

FIG.1

FIG. 2

FIG. 3

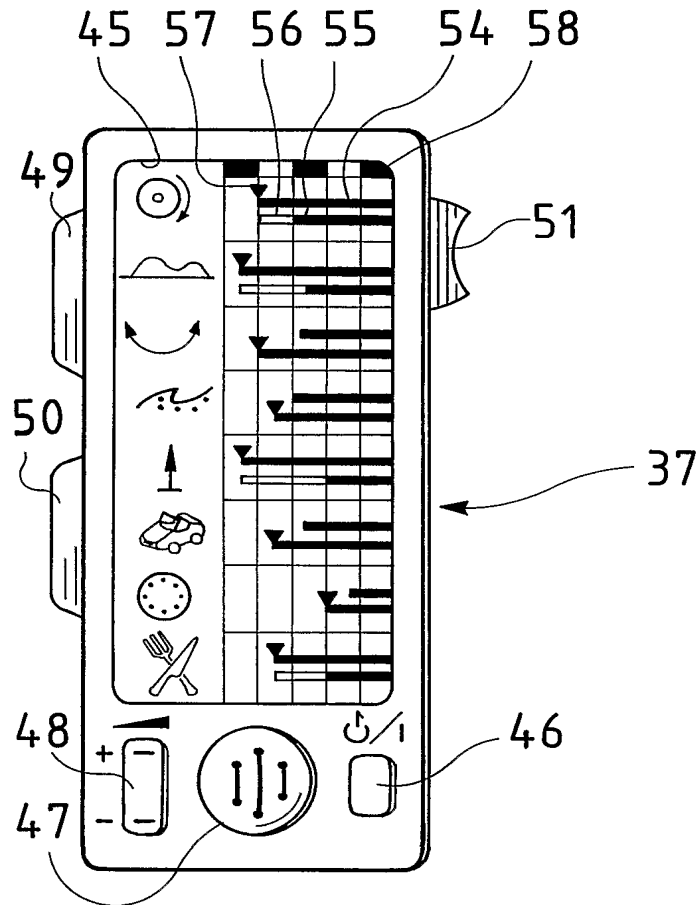


FIG. 4

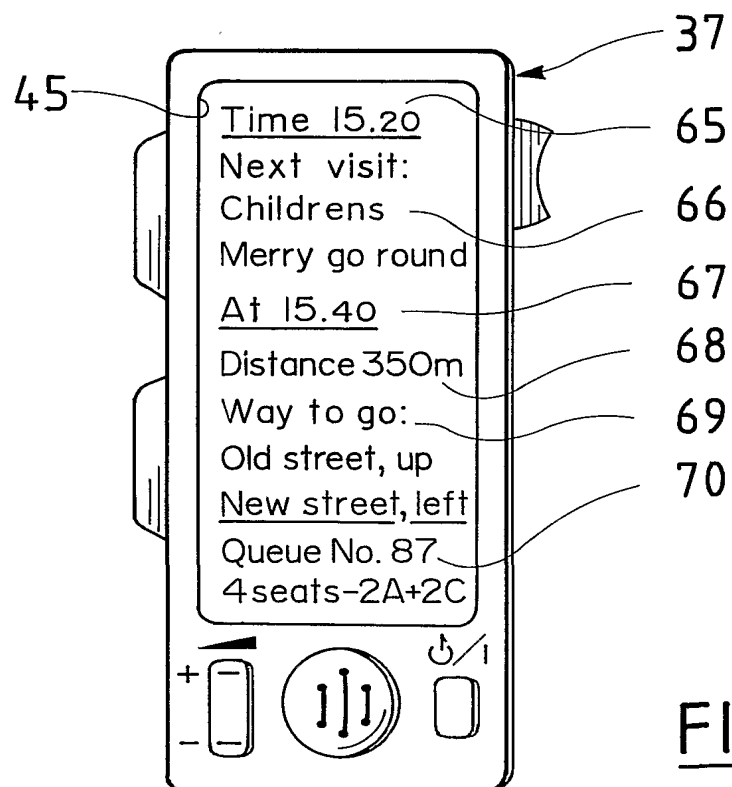


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 02/00674

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL, WPI DATA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5978770 A (WAYTENA ET AL.), 2 November 1999 (02.11.99), column 3, line 55 - line 67; column 14, line 63 - column 15, line 16, abstract --	1-9
Y	GB 2307324 A (LEONARD SIM), 21 May 1997 (21.05.97), page 7, line 21 - page 8, line 2; page 11, line 28 - line 31; page 14, line 17 - line 32, figures 6,7 --	1-9
P,Y	WO 0145003 A1 (Q-WISE AB), 21 June 2001 (21.06.01), claim 1, abstract --	1-9

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

2 July 2002

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 02/00674

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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A	WO 0072214 A1 (PASSKEY.COM, INC.), 30 November 2000 (30.11.00), abstract --	3
A	GB 2346697 A (MOTOROLA GMBH), 16 August 2000 (16.08.00), figure 3, claims 1-3,6,10, abstract --	2,5,6
A	US 6147624 A (CLAPPER), 14 November 2000 (14.11.00), figure 4, abstract --	8,9
A	WO 9804080 A1 (ZEITMAN), 29 January 1998 (29.01.98), claims 18-20, abstract -----	8,9

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				HU	9904097 A	28/03/00
				IL	118898 D	00/00/00
				IL	128065 D	00/00/00
				JP	2002506541 T	26/02/02
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				US	5940481 A	17/08/99